

Application No. 10/711,906
Filed: October 12, 2004
Page 2 of 8

Examiner: Hoang Anh Le
Art Unit: 2821

Amendments to the specification:

Please amend the title to read:

MULTIBAND ANTENNA

Please replace paragraph [0007] with the following amended paragraph:

[0007] According to the invention, a multiband antenna includes a lower conductive tube and first, second, and third, and fourth upper conductive tubes, all of them conductive tubes spaced from each other and disposed on the same longitudinal axis. A first transmission line extends within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube. A second transmission line extends within the lower conductive tube and the first and second upper conductive tubes to a second feed point, located between and connected to the second and third upper conductive tubes. A third transmission line extends within the second upper conductive tube from the second feed point to a third feed point located between and connected to the first and second upper conductive tubes. Finally, a fourth transmission line extends within the third upper conductive tube from the second feed point to a fourth feed point located between and connected to the third and fourth upper conductive tubes. And an isolation circuits is are connected between the first and second upper conductive tubes. The isolation circuit resonates only at a lower frequency band. With this structure, the lower conductive tube and the first, second, and third upper conductive tubes form a center-fed low frequency dipole radiator, centered on the first feed point, that resonates in the a lower frequency band for signals transmitted along the first transmission line. Also, The first and second and third upper conductive tubes form a 1st high frequency dipole radiator centered on the second third feed point, and the third and fourth upper conductive tubes form a 2nd high frequency dipole radiator centered on the fourth feed point. The 1st and 2nd high frequency dipole radiators that resonates in a higher frequency band for signals transmitted along the second transmission line by way of the second feed point.

Application No. 10/711,906
Filed: October 12, 2004
Page 3 of 8

Examiner: HoangAnh Le
Art Unit: 2821

Please replace paragraph [0009] with the following amended paragraph:

[0009] In another aspect of the invention, a multiband antenna includes a lower conductive tube and first, second, ~~and third and fourth~~ upper conductive tubes, all of them conductive tubes spaced from each other and disposed on the same longitudinal axis. A first transmission line extends within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube. A second transmission line extends within the lower conductive tube and the first and second upper conductive tubes to a second feed point located between and connected to the second and third upper conductive tubes. A third transmission line extends within the second upper conductive tube from the second feed point to a third feed point located between and connected to the first and second upper conductive tubes. Finally, a fourth transmission line extends within the third upper conductive tube from the second feed point to a fourth feed point located between and connected to the third and fourth upper conductive tubes. And an isolation circuit is connected between the first and second upper conductive tubes. The isolation circuit comprises a capacitor connected in parallel with an inductor, and both are connected in series with another capacitor so that it resonates at a lower frequency band. With this structure, the lower conductive tube and the first, second, and third upper conductive tubes form a center-fed low-frequency dipole radiator, centered on the first feed point, that resonates in a the lower frequency band for signals transmitted along the first transmission line. Also, The first and second and third upper conductive tubes form a 1st high-frequency dipole radiator centered on the third feed point, and the third and fourth upper conductive tubes form a 2nd high-frequency dipole radiator centered on the fourth feed point. The 1st and 2nd high-frequency dipole radiators that resonate in a higher frequency band for signals transmitted along the second transmission line, by way of the second feed point.